ABSTRACT OF THE DISCLOSURE

A method of manufacturing a semiconductor device includes the steps of: preparing an underlying structure having a silicon carbide layer covering a copper wiring, and growing silicon oxycarbide on the underlying structure by vapor deposition using, as source gas, tetramethylcyclotetrasiloxane, carbon dioxide gas and oxygen gas, a flow rate of said oxygen gas being at most 3 % of a flow rate of the carbon dioxide gas. The surface of the silicon carbide layer of the underlying structure may be treated with a plasma of weak oxidizing gas which contains oxygen and has a molecular weight larger than that of O_2 to bring the surface more hydrophilic. Film peel-off and cracks in the interlayer insulating layer decrease.